

**REMARKS**

Claims 1 to 17 were pending in the application; claims 2, 3, 6, 7 and 15 are canceled; claims 18 and 19 are new. The Office Action has indicated that claims 10 to 13 are free of the prior art. Claims 1 and 13 are amended hereby to overcome the rejections thereof based on 35 USC §112, second paragraph. Claims 1 and 13 have been amended to remove the parenthetical material. Claim 11 has also been amended.

Claim 1 has been amended to clearly set forth the steps that comprise the method claimed, in acceptable format and also distinguishing over the prior art. Support for the limitation that forming the two-dimensional crystalline structure in the layer thus deposited, results in a fixing of the S-layer proteins, is found in the Specification at page 13, line 1. Support for the step of depositing the layer of S-layer proteins comprising the step of setting first electrochemical conditions at an electrochemical boundary layer on the carrier surface, is found on page 6, lines 2 to 14. Support for the step of forming of the two-dimensional crystalline structure and fixing the S-layer being electrochemically controlled by applying an electrical potential to the substrate, is found in Figures 3 and 4, in original claims 1 and 3, and on: page 6, lines 2 to 3; page 8, line 22 to page 9, line 1; page 9, line 12 to page 10, line 1; and page 12, line 8 to page 13, line 2. Support for the reference electrode being provided in the solution is found in Figure 4 and on page 9, line 14. Support for new claims 18 and 19 is found in original claims 2, 7, 8 and 9, and on page 5, lines 14 to 17

Claims 1 to 9 and 14 to 17 stand rejected under 35 USC §103(a) as being unpatentable over Sleytr et al (U.S. Patent No. 6,296,700 B1) in view of Pum et al (Item No. 12 on Form 1449) and Pum et al (Item No. 9 on Form 1449), and if necessary in further view of Sleytr et al (Item No. 11 on Form 1449) or Kupcu et al (Item No. 14 on Form 1449) or Sleytr et al (Item No. 15 on Form 1449).

Claims 1 to 9 and 14 to 17 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Sleytr et al (U.S. Patent No. 6,296,700 B1) in view of Pum et al (Item No. 12 on Form 1449) and Pum et al (Item No. 9 on Form 1449), and if necessary in further view of Sleytr et al (Item No. 11 on Form 1449) or Kupcu et al (Item No. 14 on Form 1449) or Sleytr et al (Item No. 15 on Form 1449).

The invention as set forth in amended claim 1 is based on the principal concept of controlling the modifying process of the bonding of the S-layer molecules after their adsorption to the substrate surface in an electrochemical way. This electrochemical control is not obtained simply by general chemical measures such as variation of a pH value or of a concentration of a substance; rather, the invention achieves such electrochemical control by appropriate measures to control the difference of potential at the electrochemical boundary layer (also see the description on page 6).

Specifically, amended claim 1 now includes the express limitation of “applying an electrical potential to the substrates with respect to a reference electrode.” One particular way to apply such a potential is by means of a potentiostat apparatus as described in the description with reference to Figure 4 and in new claims 18 and 19.

Applicants believe that claim 1, in particular the well-separated control of the steps of deposition and crystallization as well as the use of a reference electrode, delimits the invention against prior art. Moreover, a person of routine skill in the art will not find indications in the prior art to control the chemical conditions of the solution by electrochemical methods using an electrode arrangement. Rather, the prior art offers to the person skilled in the art various methods of chemical control presenting sufficient alternative ways to improve the process of deposition and crystallization of S-layers which are sufficient to lead him or her away from the invention.

Applicants believe that amended claim 1 is novel and also is non-obvious over the prior art. By the same token, applicants also believe that the double patenting rejection is overcome.

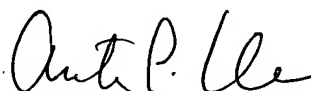
CONCLUSION

In view of the foregoing, Applicants respectfully submit that claims 1, 4, 5, 8 to 14 and 16 to 19 are in condition for allowance. Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims. If there are any other fees due in connection with the filing of this response, please do not hesitate to contact the undersigned.

Respectfully Submitted,

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